

CLAIMS

1. An antenna arrangement for a wireless device, the device comprising at least one ground conductor and the antenna arrangement comprising at least one antenna, wherein the or each antenna has an electrical length of more than half a wavelength, the electrical length being selected so that the total current in each of the at least one ground conductors is substantially minimised.
2. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a helical antenna.
3. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a monopole antenna.
4. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a physically-shortened electric antenna.
5. An antenna arrangement as claimed in any one of claims 1 to 4, characterised in that the electrical length of the or each antenna is between 0.5 and 0.8 wavelengths.
6. An antenna arrangement as claimed in any one of claims 1 to 4, characterised in that the antenna arrangement comprises at least two antennas and further comprises means for feeding each antenna with a signal of suitable amplitude and phase so that the antenna arrangement functions as a directional array.
7. An antenna arrangement as claimed in claim 5, characterised in that the antenna arrangement comprises at least two antennas and further comprises means for feeding each antenna with a signal of suitable amplitude and phase so that the antenna arrangement functions as a directional array.

8. A wireless device including an antenna arrangement as claimed in any one of claims 1 to 4.

5 9. A wireless device including an antenna arrangement as claimed in claim 5.

10. A wireless device including an antenna arrangement as claimed in claim 6.

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11. A wireless device including an antenna arrangement as claimed in claim 7.